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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,866	04/20/2001	Samuel C. Weaver	5564	3291

7590                    02/26/2002

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[REDACTED]  
EXAMINER

NGUYEN, SON T

[REDACTED]  
ART UNIT                  PAPER NUMBER

3643

DATE MAILED: 02/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/838,866	WEAVER, SAMUEL C.
	<b>Examiner</b>	<b>Art Unit</b>
	Son T. Nguyen	3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 20 April 2001.
- 2a) This action is **FINAL**.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

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**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)                  4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                  5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.                  6) Other: \_\_\_\_\_ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver (US 5,573,607 on form PTO-1449) in view of Eiko et al. (JP 407,076,749A).

For claim 1, Weaver discloses that light weight metals such as aluminum and magnesium are highly in demand and have been used in a wide variety of industries which employ metal as a material (col. 1, lines 19-25). Since these alloys have some negative drawbacks, Weaver has developed a better metal matrix composites for these industries to employ. Weaver's matrix is formed from a molten metal consisting of aluminum, magnesium, titanium, and mixtures thereof and particles of silicon boride consisting of silicon tetraboride, silicon hexaboride and mixtures thereof, the silicon boride being present in a range from about 0.1 to about 80 weight percent in the molten metal (see claim 1 of Weaver). Weaver's matrix is very manageable, can be easily remelted and yet maintaining it's strength and hardness. Weaver isn't specific as to what industries use his metal matrix because there are a variety of industries that employ metal in making their products, and one industry is the horseshoe industry. It is very well known that the horseshoe industry uses metal to make its horseshoe. Particularly for race horses, it is necessary to have lightweight horseshoes to improve speed, wear

and impact. Eiko et al. teach a desire to have a lightweight metal alloy body for horseshoes for racing purposes. In Eiko et al., they employ similar alloys (Al, Mg, etc.) as that of Weaver except for the silicon boride composite. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the metal matrix composite of Weaver in horseshoes as similarly taught by Eiko et al. because the metal matrix composite of Weaver makes the horseshoes lighter but yet maintain strength and hardness. Note, the examiner is not attempting to modify Eiko et al. in any way, the examiner is just presenting an example of an industry where a metal matrix can be used because Weaver had stated that metal matrix is highly in demand in a large variety of industries which require metal to make their products.

For claims 2,10, Weaver as modified by Eiko et al. (emphasis on Weaver) further discloses silicon hexaboride (col. 2, line 26).

For claims 3,11, Weaver as modified by Eiko et al. (emphasis on Weaver) further discloses the silicon hexaboride having an average particle size of about 0.1 to about 200 micrometers (col. 2, lines 38-40).

For claims 4,12, Weaver as modified by Eiko et al. (emphasis on Weaver) further discloses the silicon hexaboride having an average particle size of about 20 micrometers (col. 2, lines 38-40).

For claims 5-6,9, Weaver as modified by Eiko et al. (emphasis on Weaver) further discloses the molten metal being aluminum (col. 2, line 25). For claim 9, see also above explanation for claim 1.

For claims 7-8,13-14, Weaver as modified by Eiko et al. (emphasis on Weaver) further discloses the silicon boride composition/silicon hexaboride being present in a range from about 10 to about 40 weight % (col. 2, line 36 and claim 20) but is silent about the range being 10 to about 45 weight %. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the range of silicon boride composition/ silicon hexaboride of Weaver as modified by Eiko et al. (emphasis on Weaver) from about 10 to about 45 weight %, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

For claims 15-16, see the above paragraphs.

#### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. **Claims 1-16** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No.

Art Unit: 3643

5,573,607 in view of Eiko et al. (as above). The combination is as explained in the above paragraphs.

5. The following prior arts are made of record to provide the best available relevant examples of a horseshoe made out of a metal matrix composite: JP07076749A teaches employing a metal alloy for race horseshoe.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son T. Nguyen whose telephone number is (703) 305-0765. The examiner can normally be reached on Monday - Friday from 8:30 a.m. to 5:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon, can be reached at (703) 308-2574. The fax number of the Art Unit is (703)-306-4195. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-4177.



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Son T. Nguyen, *STN*  
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February 20, 2002